



Weatherford

RESISTIVITY LOG
MDL-MCG

SCALE 5":100 LOGARITHMIC

COMPANY	SAVIA PERU S.A		
WELL	LOG-26XD		
FIELD	LOBITOS		
PROVINCE/COUNTY	PIURA		
COUNTRY/STATE	PERU		
LOCATION	N: 9 508 662.12m E: 459 045.17m		
Permanent Datum SEA LVL, Elevation 50 feet Log Measured From KB Drilling Measured From KB.	Other Services CMI MPD		MSS MDN
	Elevations: KB DF GL		feet 50.00 50.00 -335.00
Date	05-JAN-2013	07-JAN-2013	
Run Number	ONE	TWO	
Service Order	796	796	
Depth Driller	9800.00	9800.00	feet
Depth Logger	6942.00	9600.00	feet
First Reading	6942.00	9600.00	feet
Last Reading	5850.00	5850.00	feet
Casing Driller	5898.00	5898.00	feet
Casing Logger	5886.75	5886.75	feet
Bit Size	8.500	8.500	inches
Hole Fluid Type	WATER BASED		WATER BASED
Density / Viscosity	1.41 g/cc	19.00 CP	1.41 g/cc
PH / Fluid Loss	9.40	4.80 CC/30Min	9.30
Sample Source	ACTIVE PIT		ACTIVE PIT
Rm @ Measured Temp	1.40 @ 76.0	ohm-m	1.45 @ 78.0
Rmf @ Measured Temp	0.95 @ 78.0	ohm-m	0.95 @ 78.0
Rmc @ Measured Temp	3.0 @ 78.0	ohm-m	2.60 @ 80.0
Source Rmf / Rmc	PRESS		FILTER
Rm @ BHT	0.88 @123.0	ohm-m	0.80 @136.0
Time Since Circulation	10:00 05JAN		23:00 08JAN
Max Recorded Temp	123.00	deg F	136.00
Equipment / Base	16064	TAL	16064
Recorded By	YANINA MENDEZ		YANINA MENDEZ
Witnessed By	CESAR MORALES		CESAR MORALES

REMARKS

- Objective: to obtain accurate open hole Gamma Ray , SP, Caliper 8 arms, Resistivity (Dual Laterolog), Sonic log in the 8.5" section.
- This is the First Log done in this well. RULS 206.31ft ;
- All WFT logging depth control applied.
- Casing Shoe was found at 5886.75 ft MD.
- Maximum recorded temperature measured by Gamma Ray sensor: 136°F.
- Mud resistivity measurements: Rm= 1.4 @ 76 °F, Rmf= 0.95 @ 78 °F, Rmc= 3.00 @ 78 °F.
- Mud resistivity measurements at BHT: Rm= 0.799 @ 136°F, Rmf = 0.554@ 136°F, Rmc= 1.75 @ 136°F.
- Well sketch as per driller depth.
- Main section from TD to 8500ft and from 7900ft to 3540 ft MD as per client requirements .
- No Repeat Section due to bridged.
- Hole volume= 1085ft^3
- Annular volume= 750ft^3 for a 5.5" casing.
- Average:
X caliper: 10.706"
Y caliper: 9.396"
X caliper: 9.92"
Y caliper: 9.058"
- The scales and shading of the curves are as per client requirements.
- Enviromental corrections.
Gamma Ray: Mud density, Caliper.
Laterolog: Standoff, caliper, mud resistivity.
- Maximun deviation 34.50deg @ 4525 ft and maximun dogleg severity 5.55deg @ 410.00ft
- Neutron and GR logged to 3550ft as per client request.
- Toolstring bridged @ 7164ft. Try to pass the point for two hours. Then with client assurance we proceed to log from there to 3550ft.
- At secpnd attempt the toostring bridged again @ 7715ft. The cliente decided to log this part and removed the sonic at surface (MSS) to decreased the lenght of the toolstring, and move the SKJ to another position, removed the hole finder which was damaged after two bridgeds. The tool was ran again and after several attempts to reach TD, the maximun depth achieved was 7899ft. After these attemots to reach TD the client decided to run TDL.
- The data from the bottom part, obtain by TDL-CWS is on depth with the mule shoe (8500ft).

21. The data obtain with the TDL-CWS will be send to double check to try to get a better data quality

Crew at your service:

Y. Mendez / J. Jimenez / P. Marcelo / G. Chavez / E. Cruz / E. Roldan / J. Guerrero

BOREHOLE RECORD

Last Edited: 05-JAN-2013 14:44

Bit Size inches	Depth From feet	Depth To feet
17.000	0.00	1898.00
12.250	1898.00	5898.00
8.500	5898.00	9800.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
surf	13.375	0.00	1898.00	54.50
interm	9.625	0.00	5898.00	43.50

WELL DIAGRAM

13.38 in Casing: 0.00 ft

9.63 in Casing: 0.00 ft

17.00 in Bit size: 0.00 - 1898.00 ft

13.38 in Casing shoe: 1898.00 ft

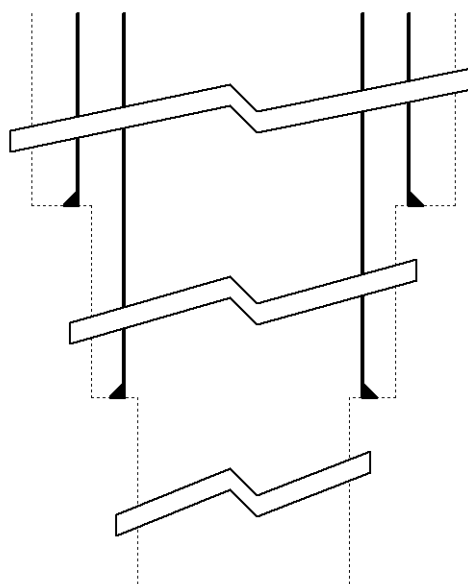
12.25 in Bit size: 1898.00 - 5898.00 ft

9.63 in Casing shoe: 5898.00 ft

8.50 in Bit size: 5898.00 - 9800.00 ft

Total bit depth: 9800.00 ft

Temperature: 123.00 Degrees F



DOWNHOLE EQUIPMENT

I:\LO6_26XD\Final\repro5.dta

CBH-C, Cablehead, 11 pin

CBH-CC 124 LG: 2.40 ft WT: 24.3 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor

SHA-J.A 229 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Stiff Bridle Electrode Sub.

MBE-C.B 260 LG: 12.33 ft WT: 77.2 lb OD: 2.28 in

Compact Stiff Bridle Electrode Sub.

MBE-C.B 261 LG: 12.33 ft WT: 77.2 lb OD: 2.28 in



90.31 ft

SPDL - Spontaneous Potential

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 171 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Comms Gamma
MCG-D.A 261 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 755 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-C.A 442 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-C.A 238 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 507 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Upper Guard Sub.
MUG-A 47 LG: 8.98 ft WT: 68.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 633 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Laterolog Electrode Sub.
MLE-D.A 227 LG: 12.34 ft WT: 92.6 lb OD: 2.24 in

MIS-E.A Compact Inline Standoff sub
MIS-E.A 150 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

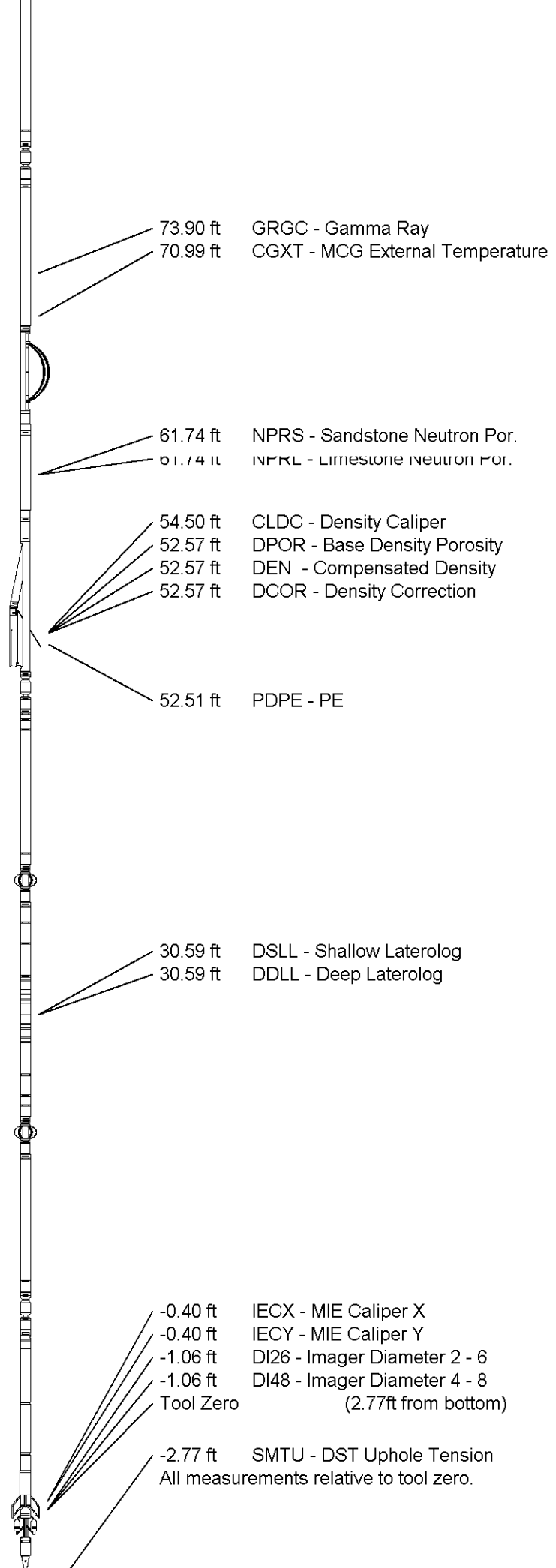
Compact Lower Guard Sub.
MLG-B.A 139 LG: 8.00 ft WT: 55.1 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 547 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

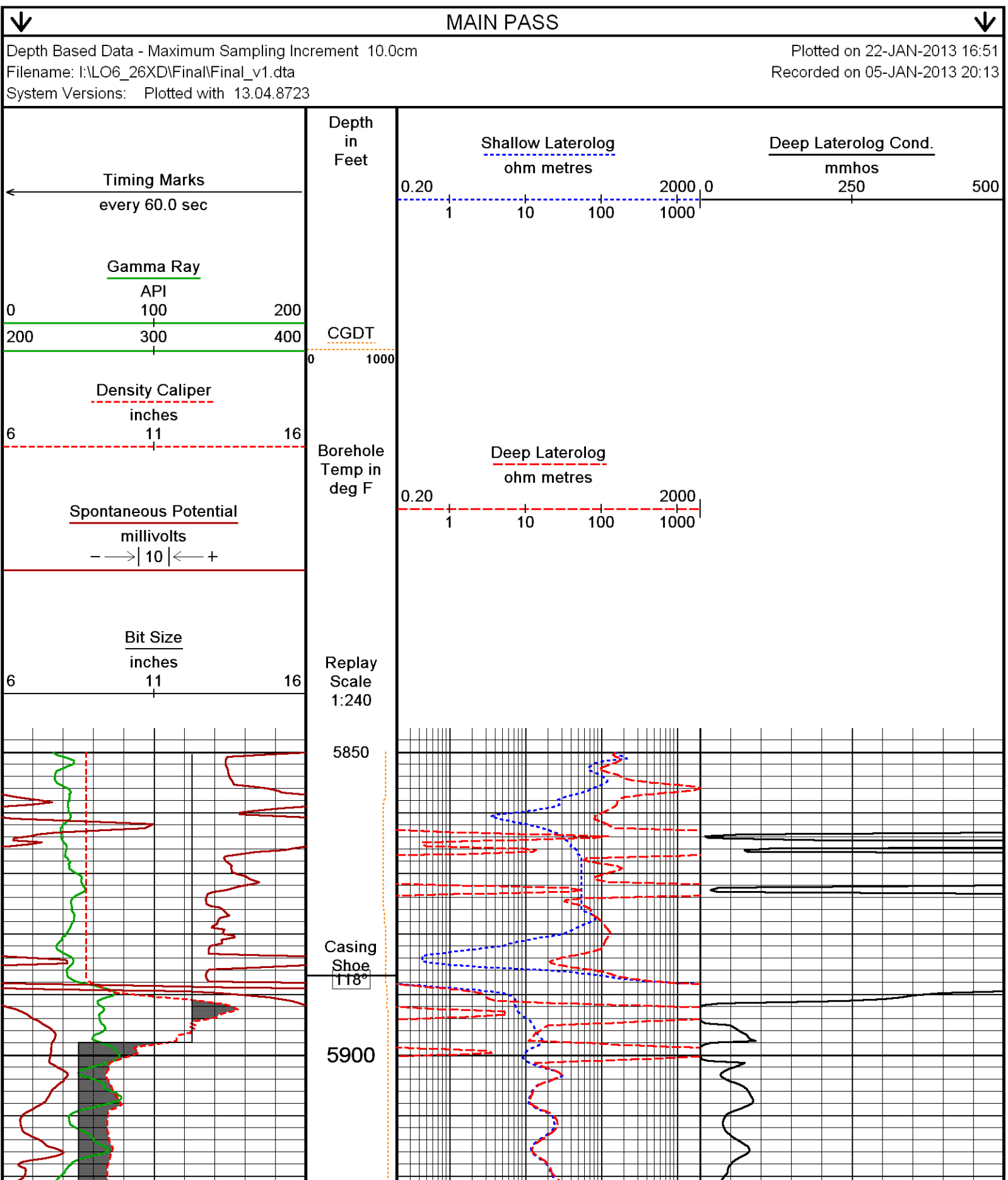
Compact MMI Electrode Section
MIE-A.A 171 LG: 13.96 ft WT: 99.2 lb OD: 2.40 in

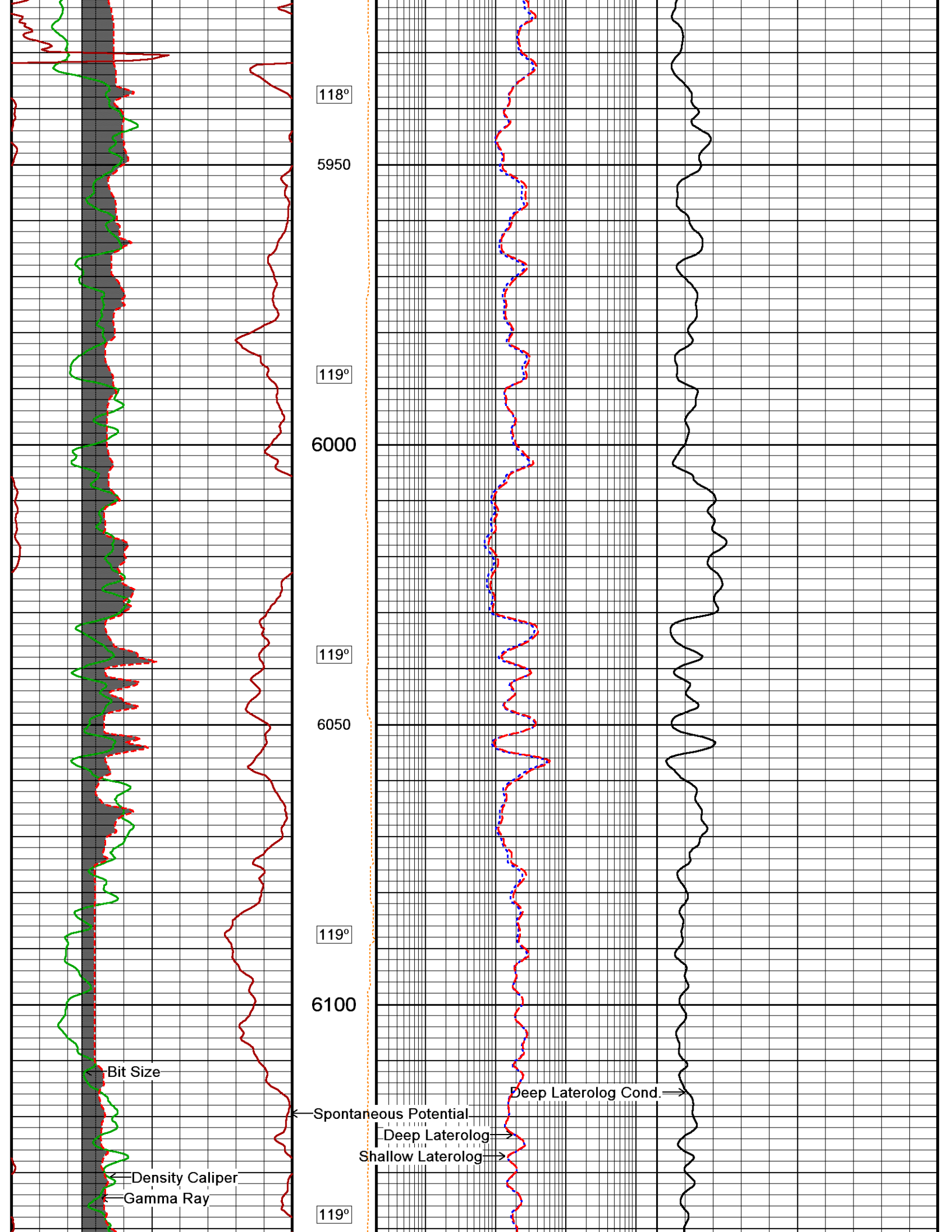
Compact Hole Finder
HFS 1 LG: 0.92 ft WT: 2.2 lb OD: 2.24 in

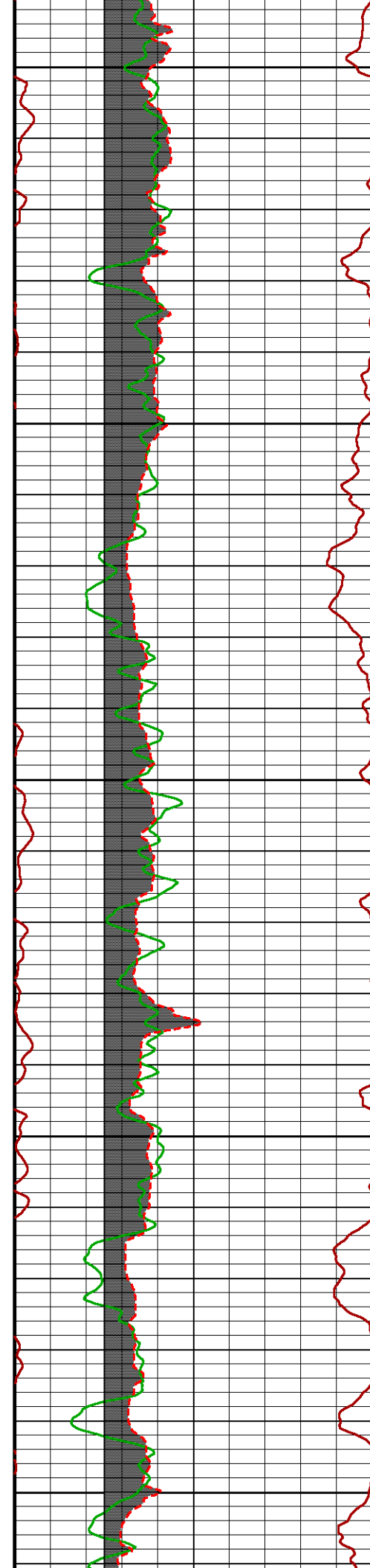
Total Length: 113.35 ft Weight: 859.8 lb



All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.







6150

119°

6200

120°

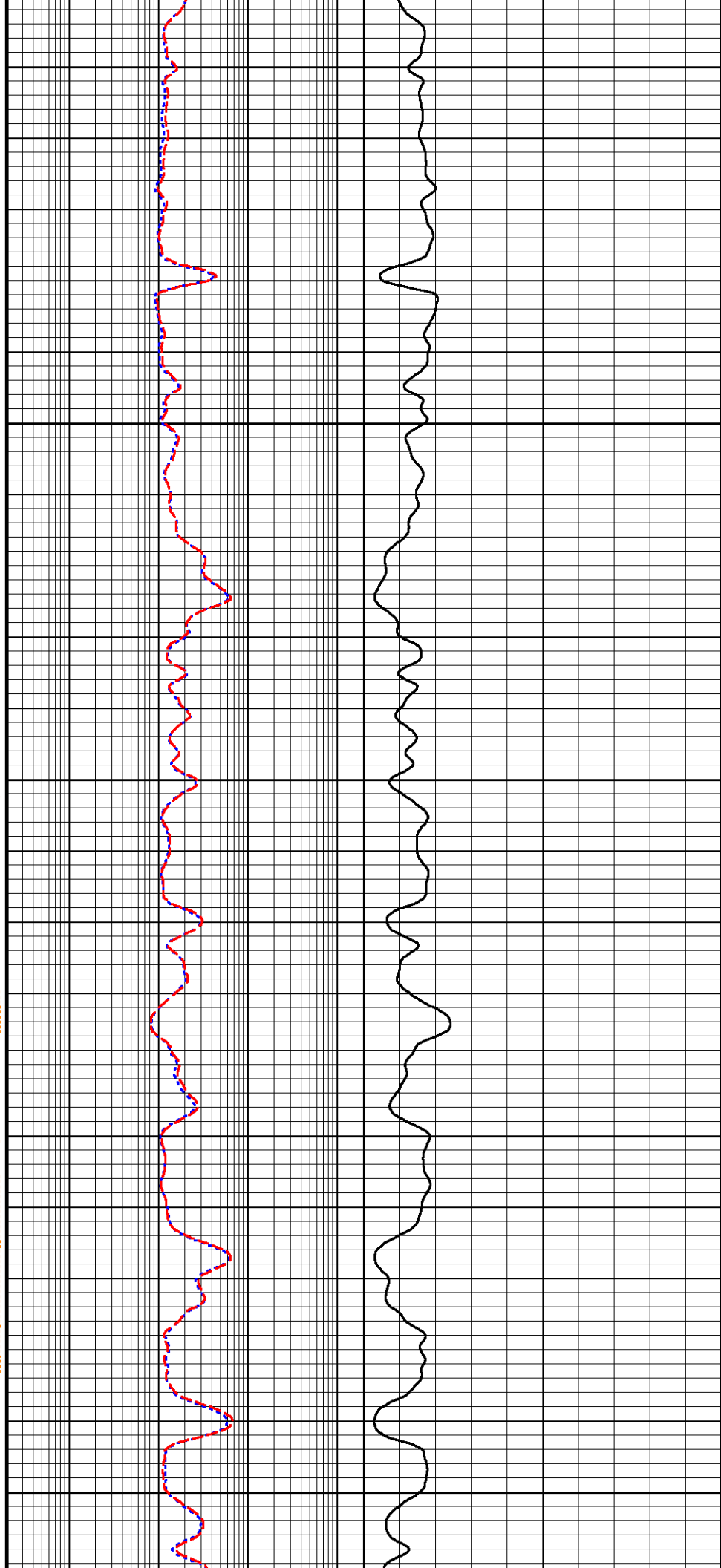
6250

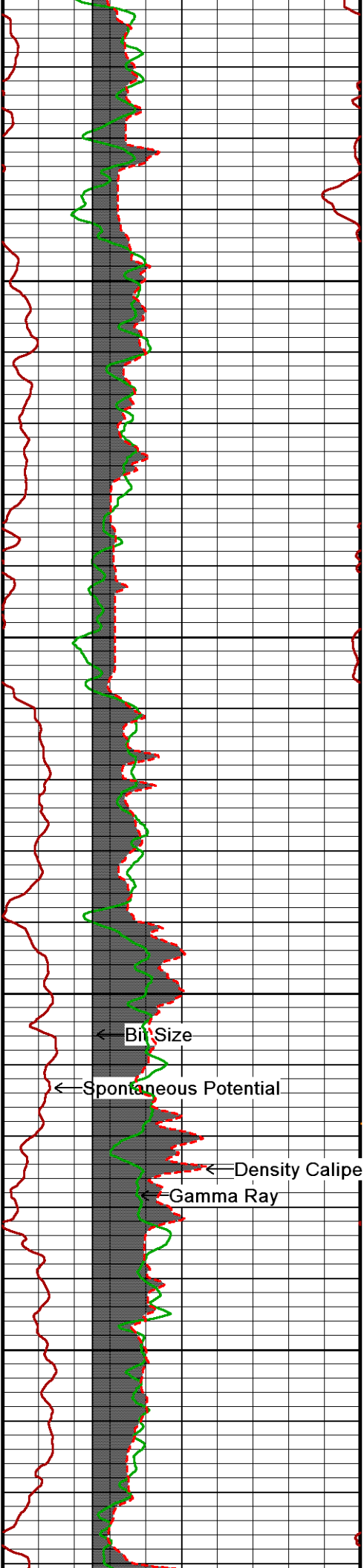
120°

6300

120°

6350





120°

6400

120°

6450

121°

6500

Bit Size

Spontaneous Potential

Density Caliper

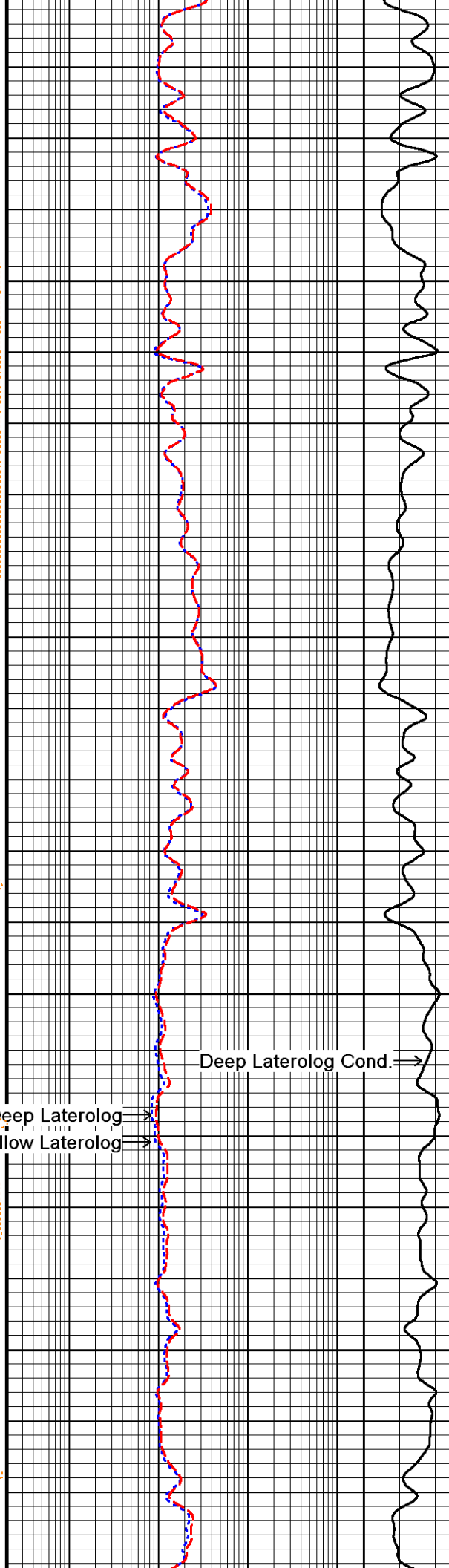
Gamma Ray

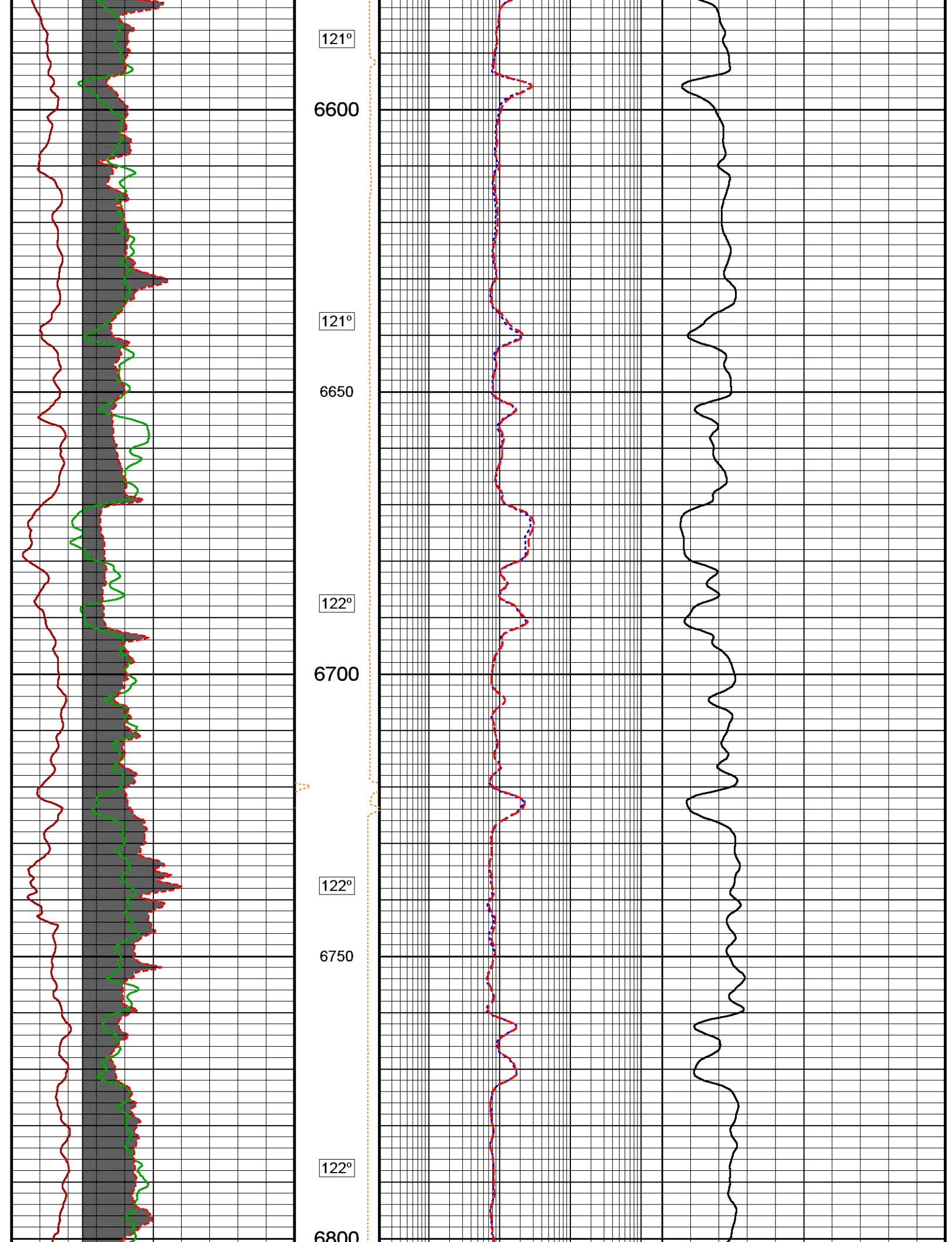
121°

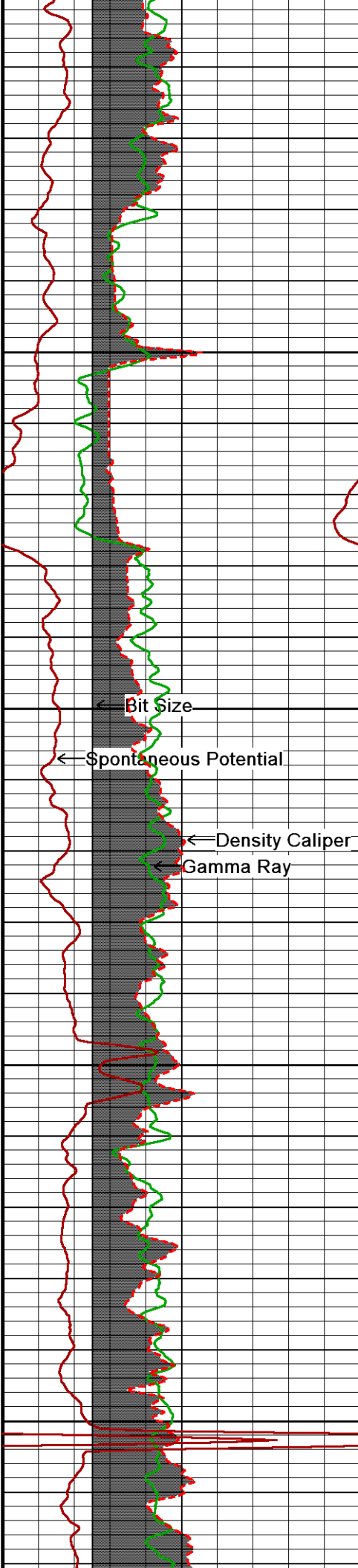
6550

Deep Laterolog
Shallow Laterolog

Deep Laterolog Cond.

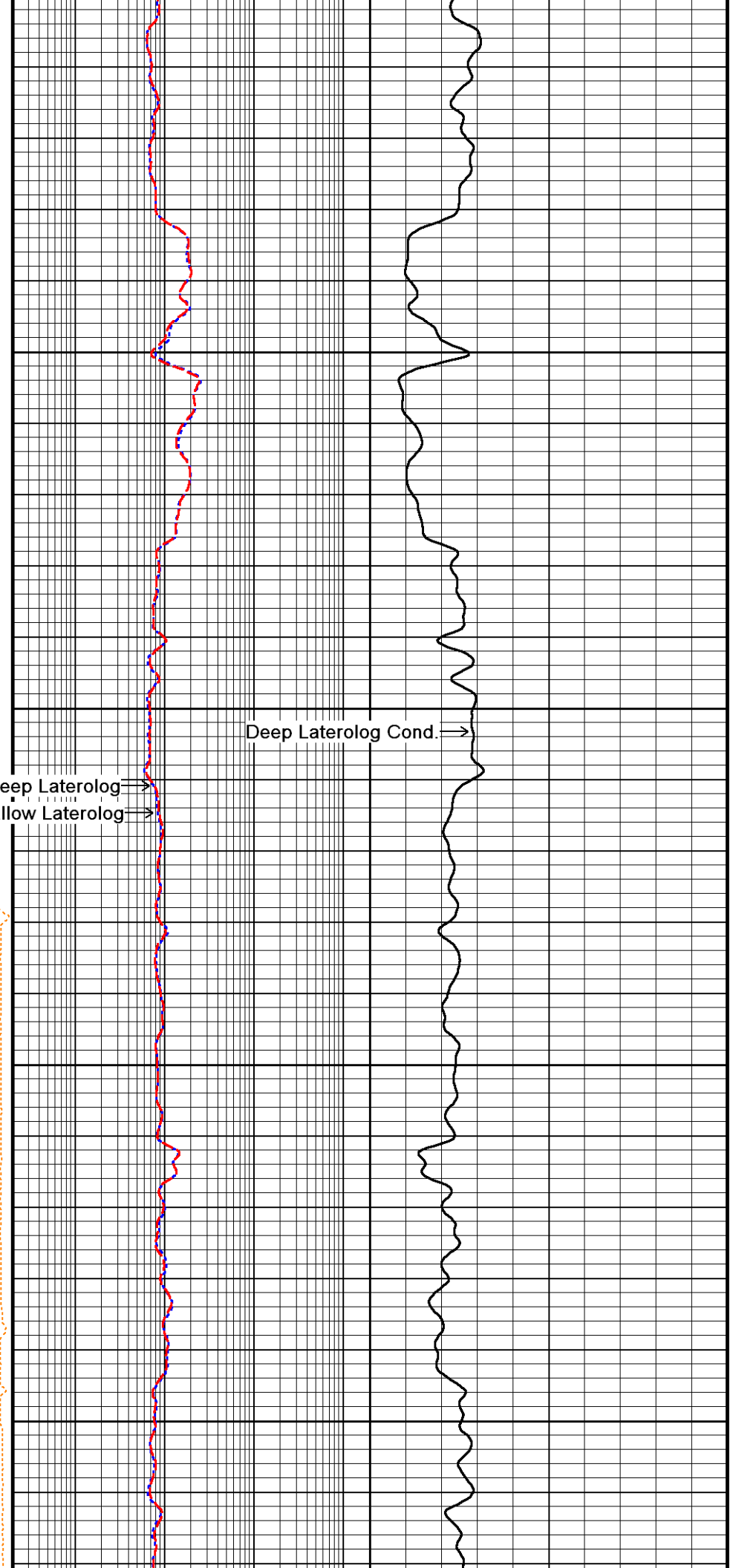


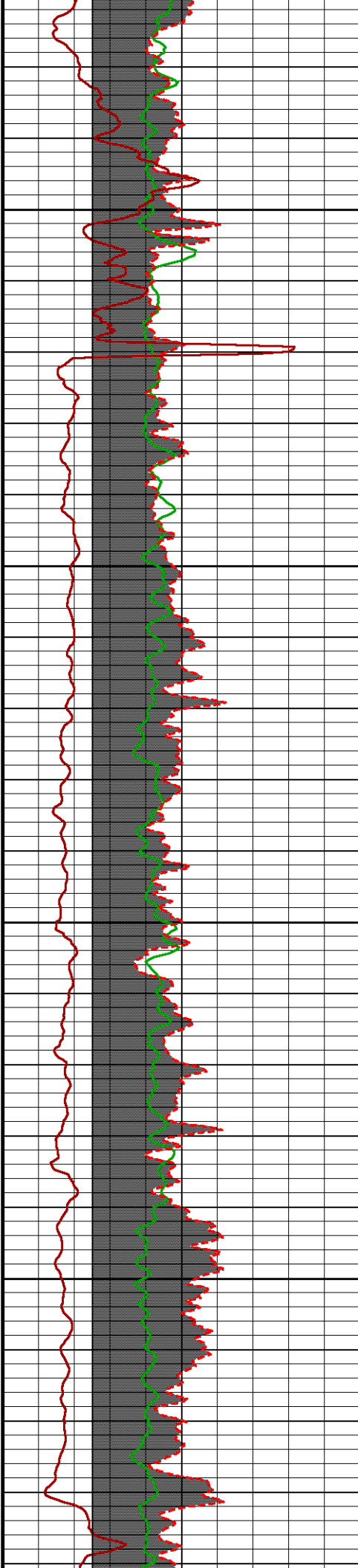




6850
122°
6900
122°
6950
123°
7000
123°

Deep Laterolog
Shallow Laterolog





123°

7050

123°

7100

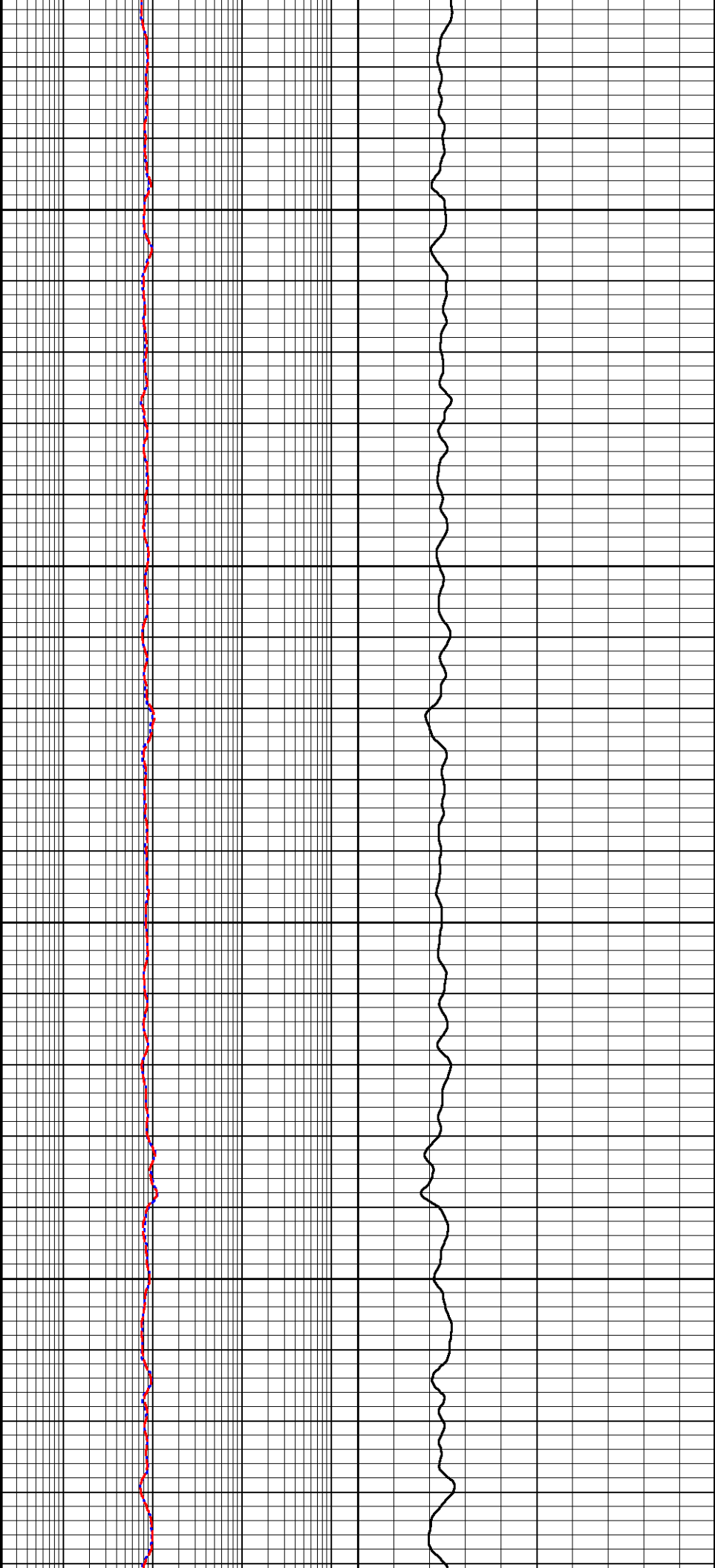
124°

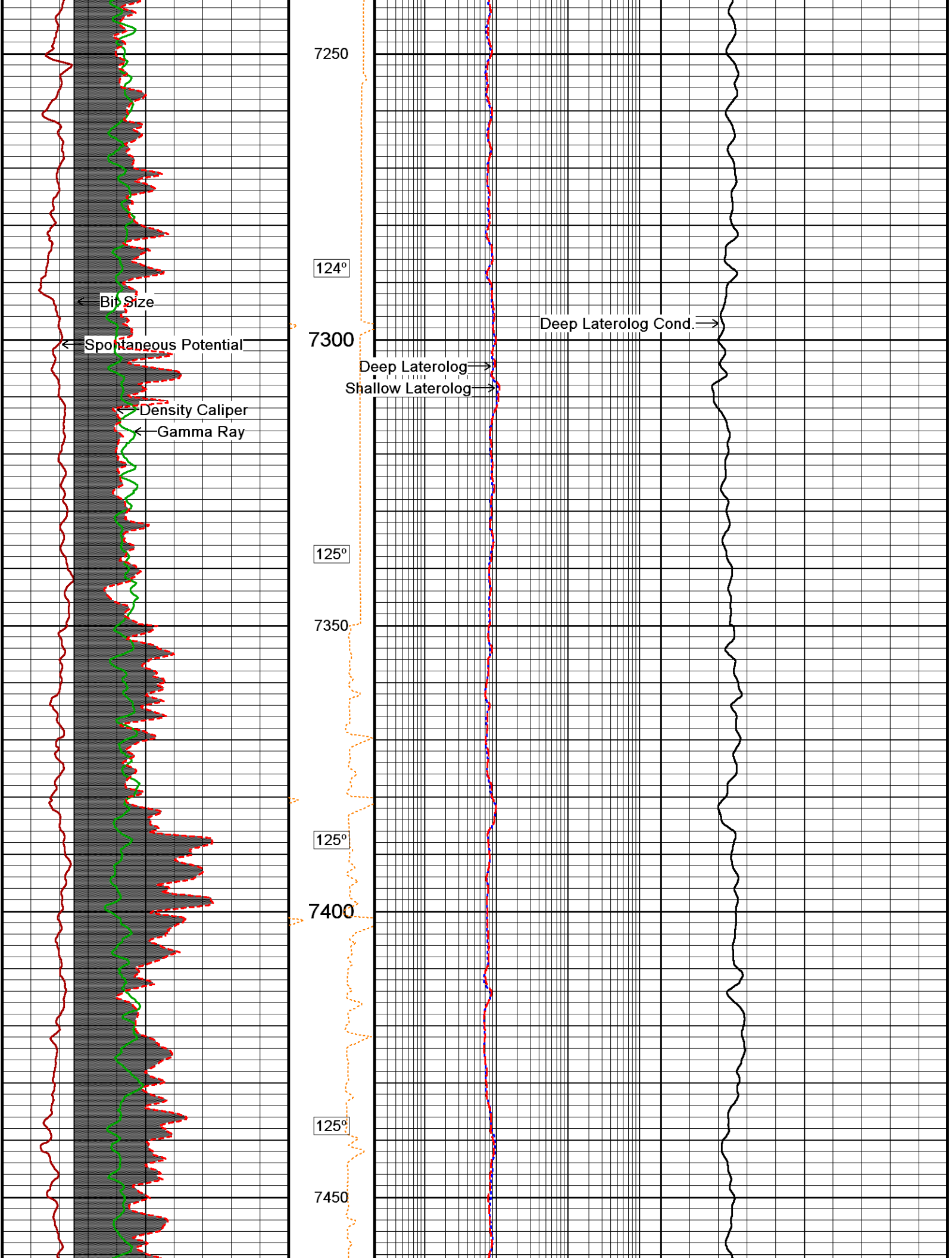
7150

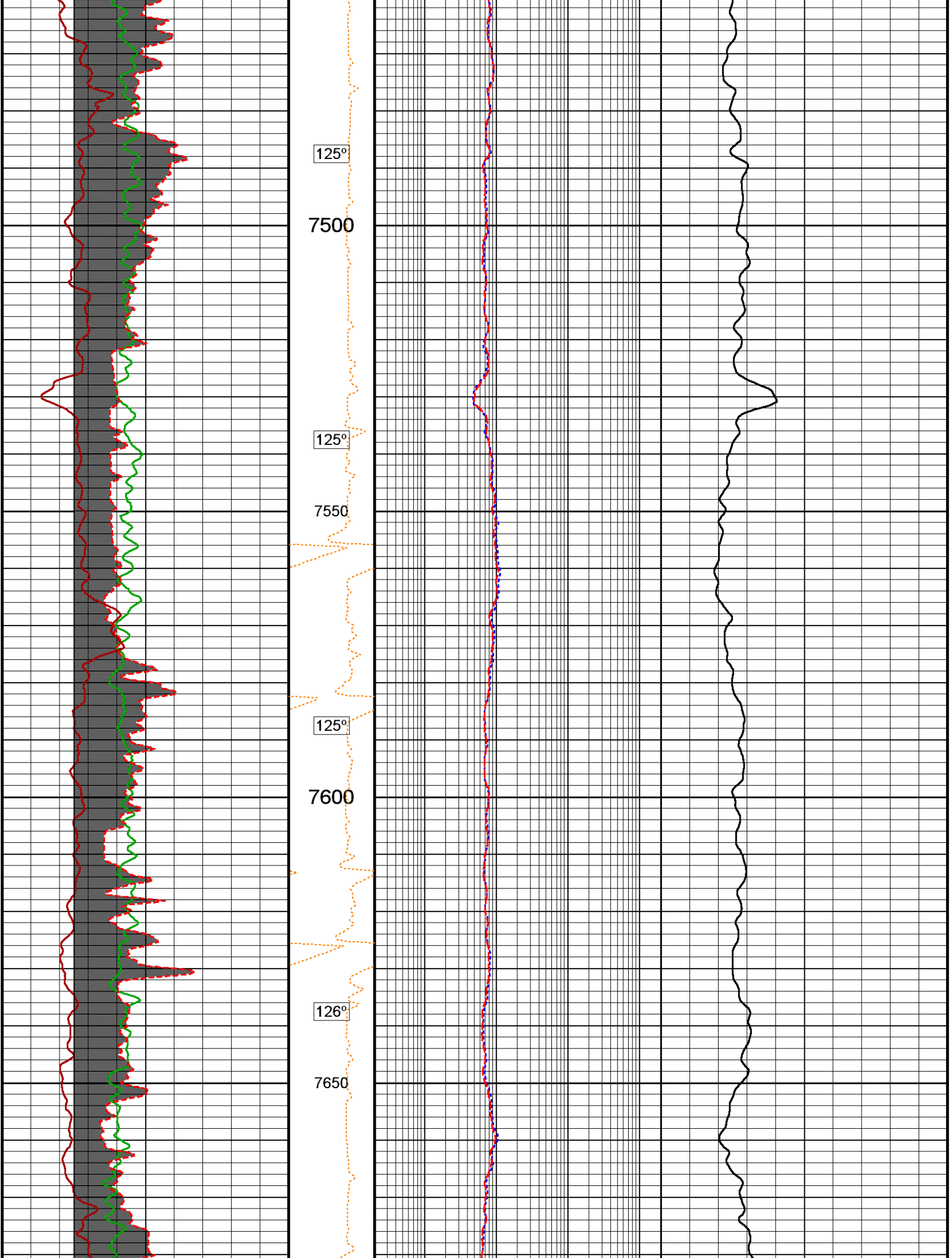
124°

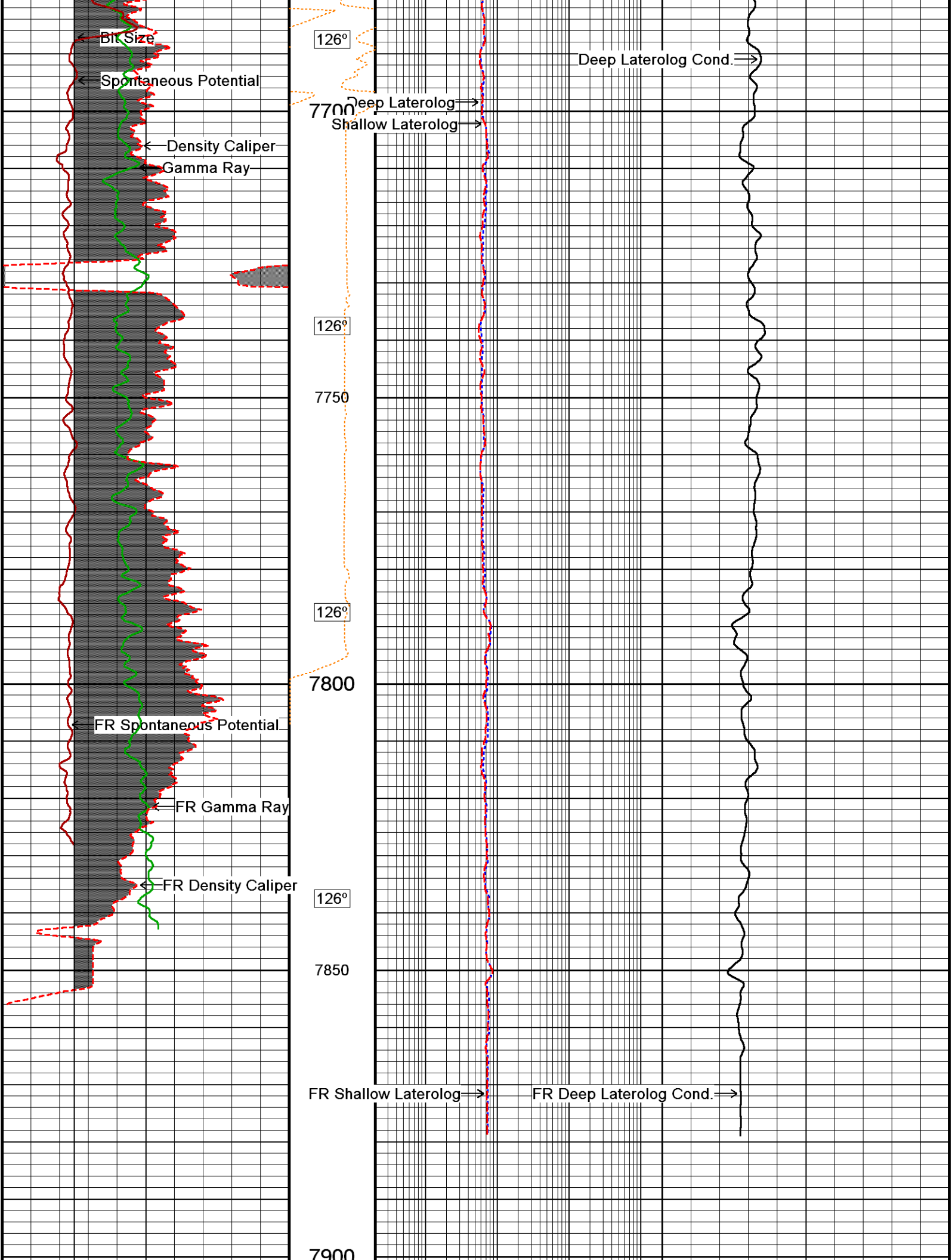
7200

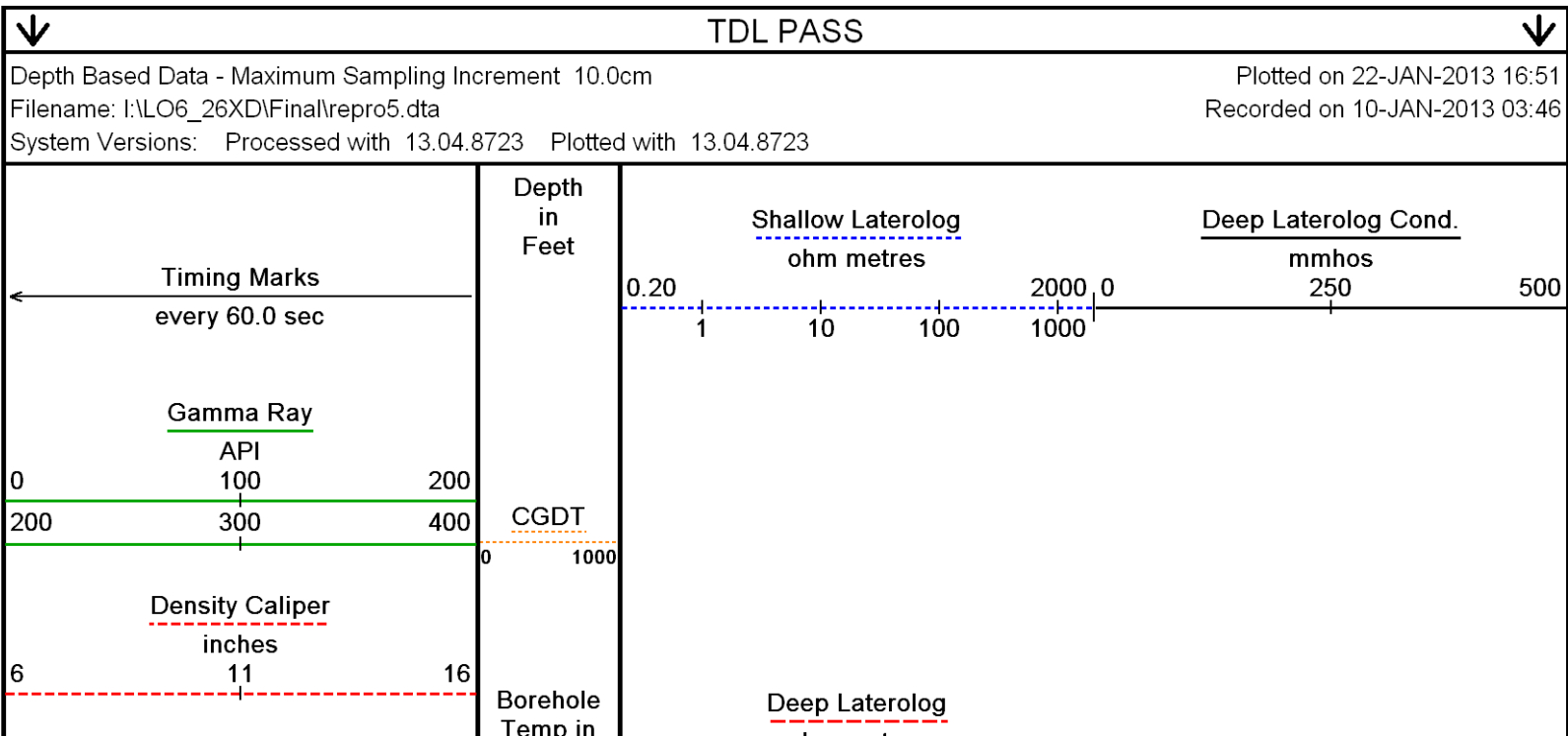
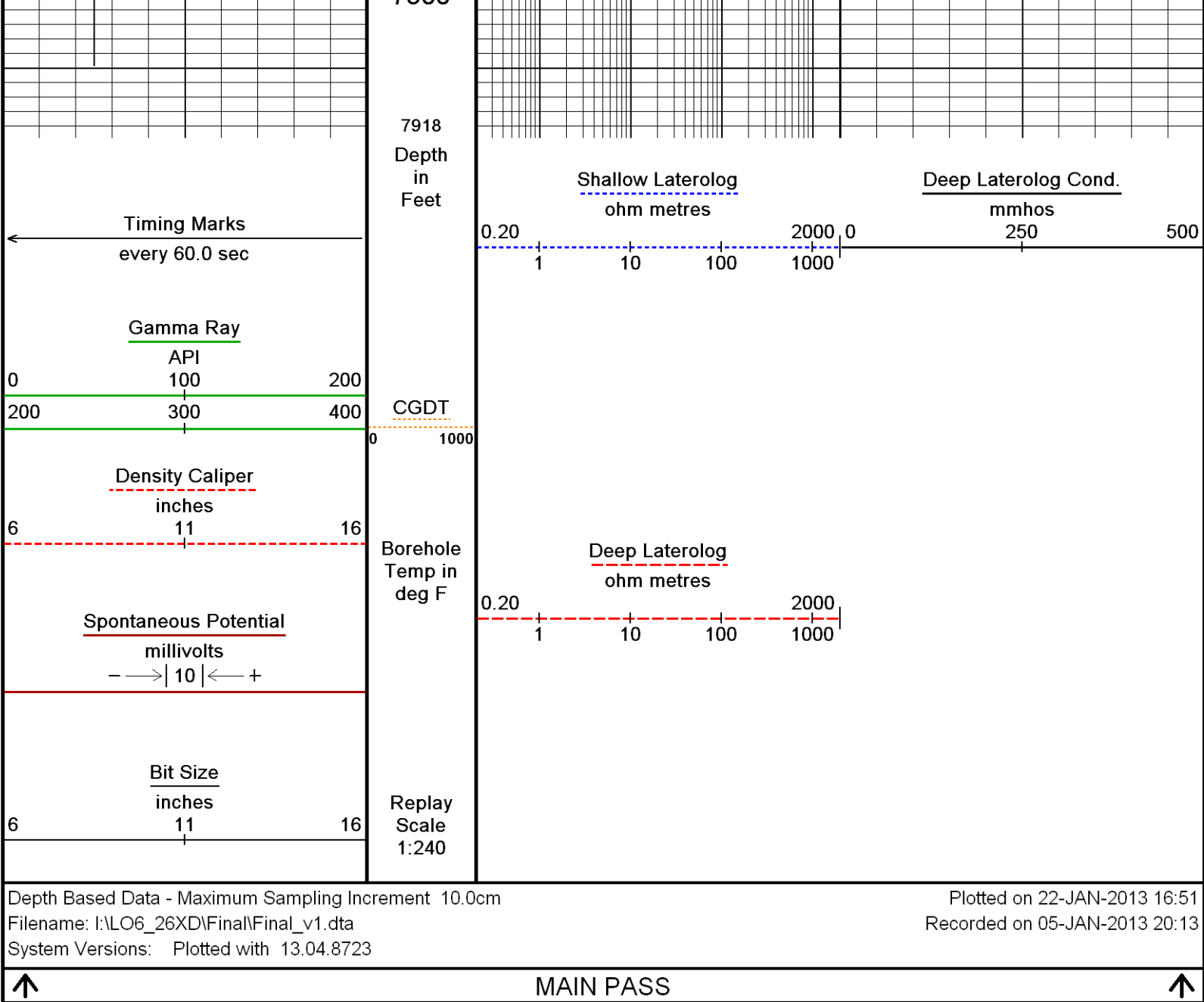
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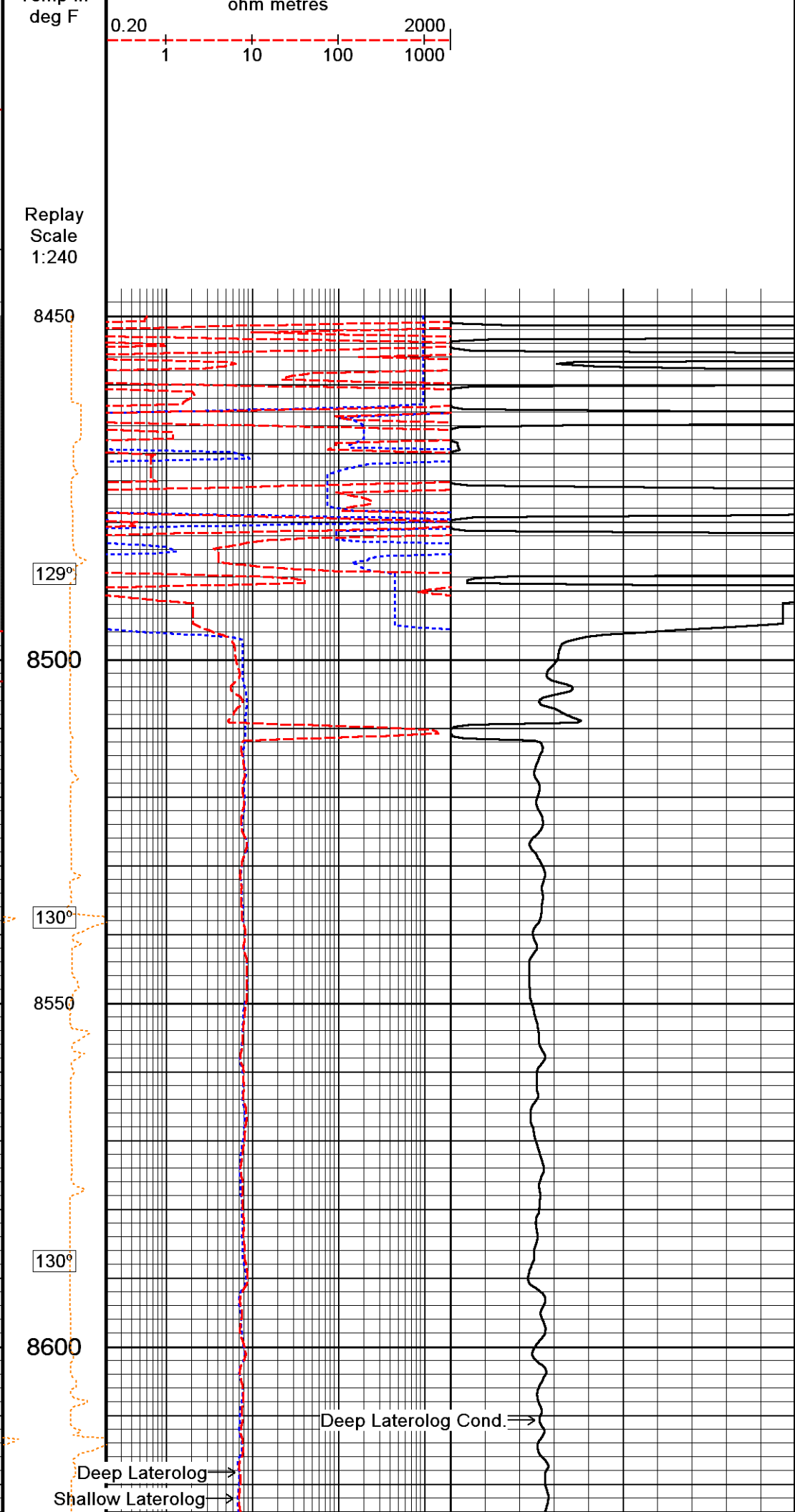
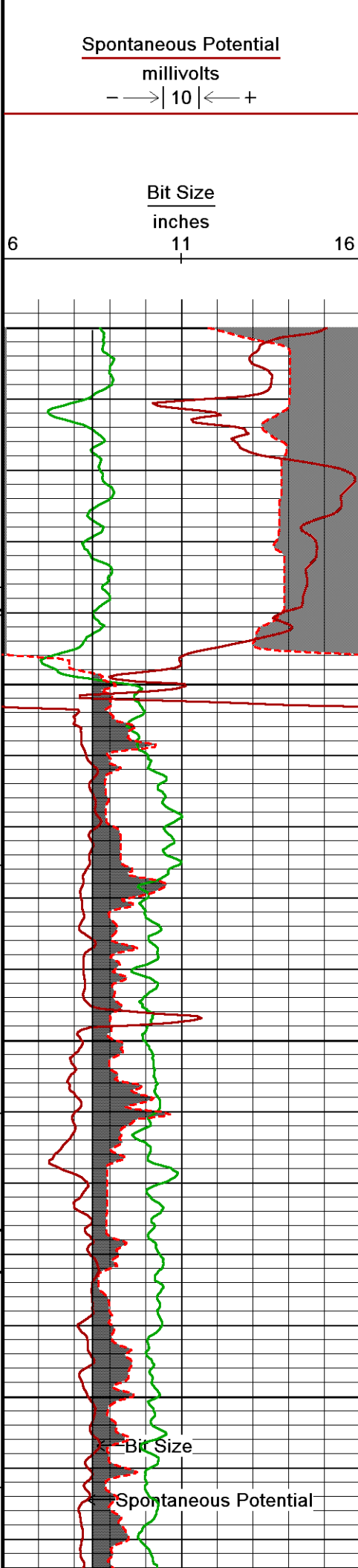


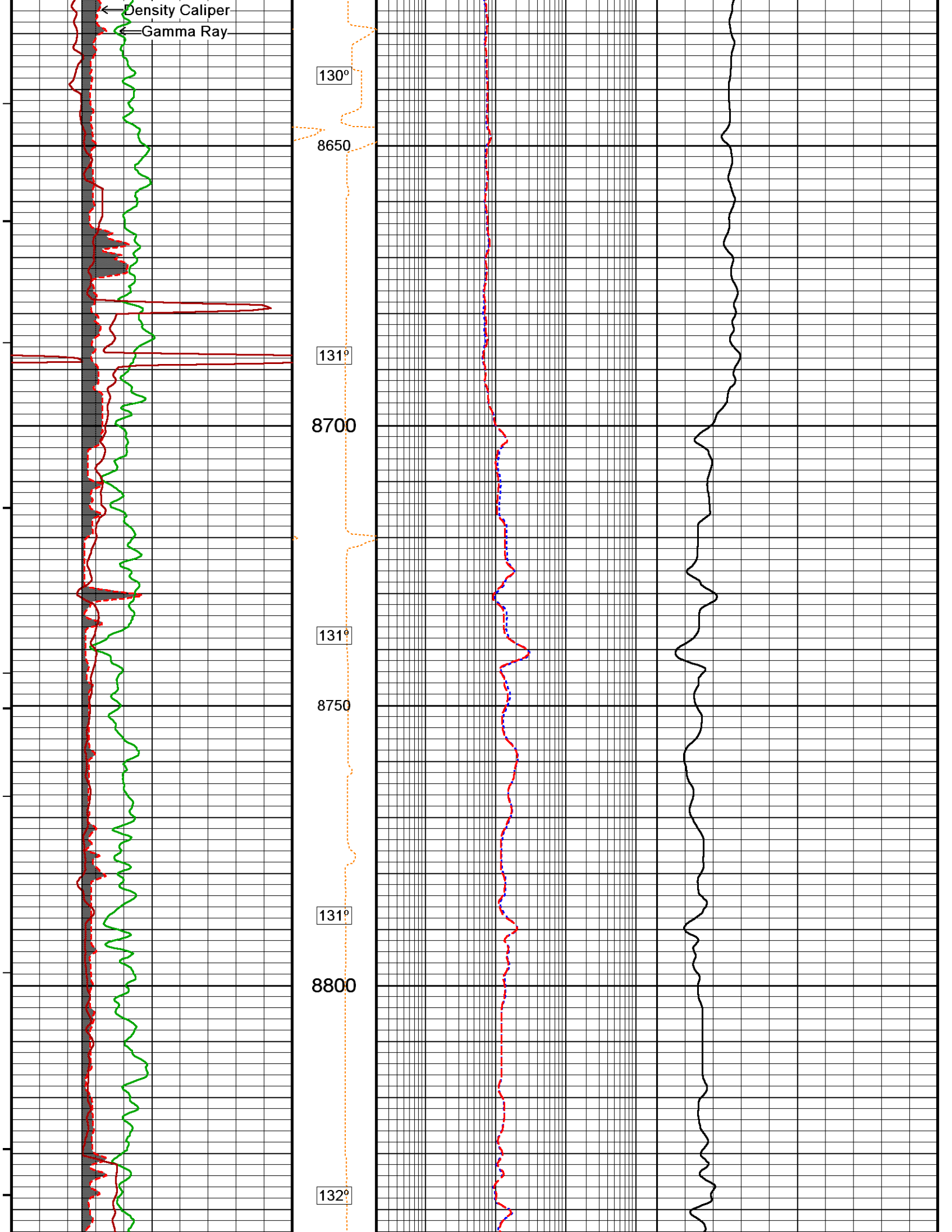


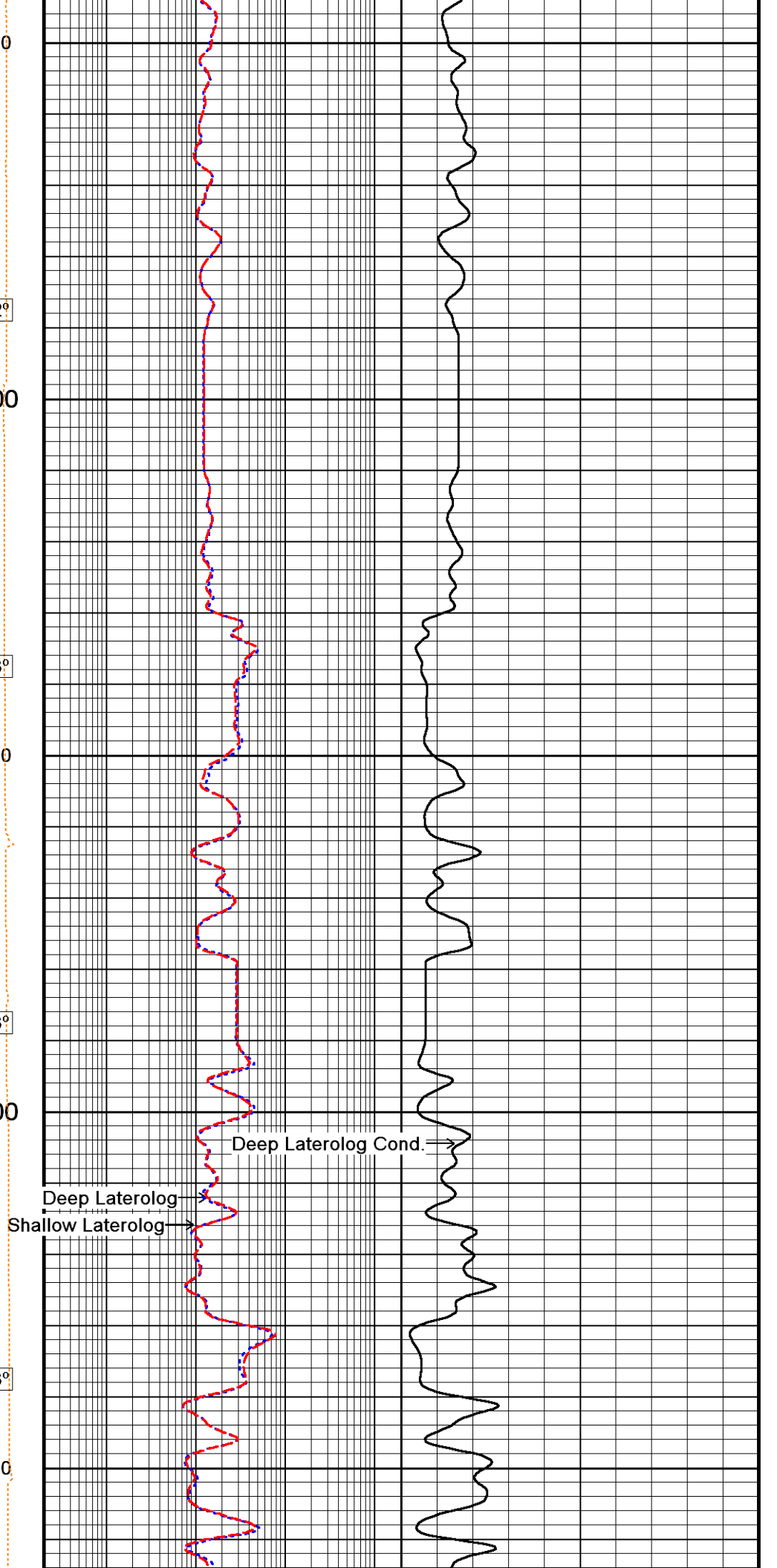
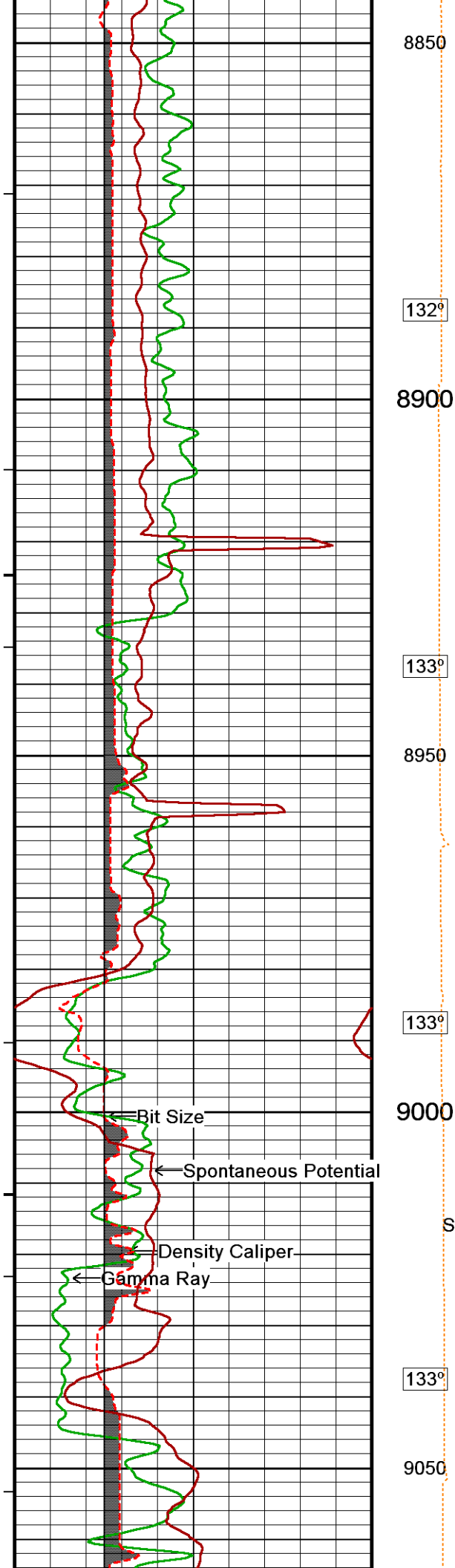


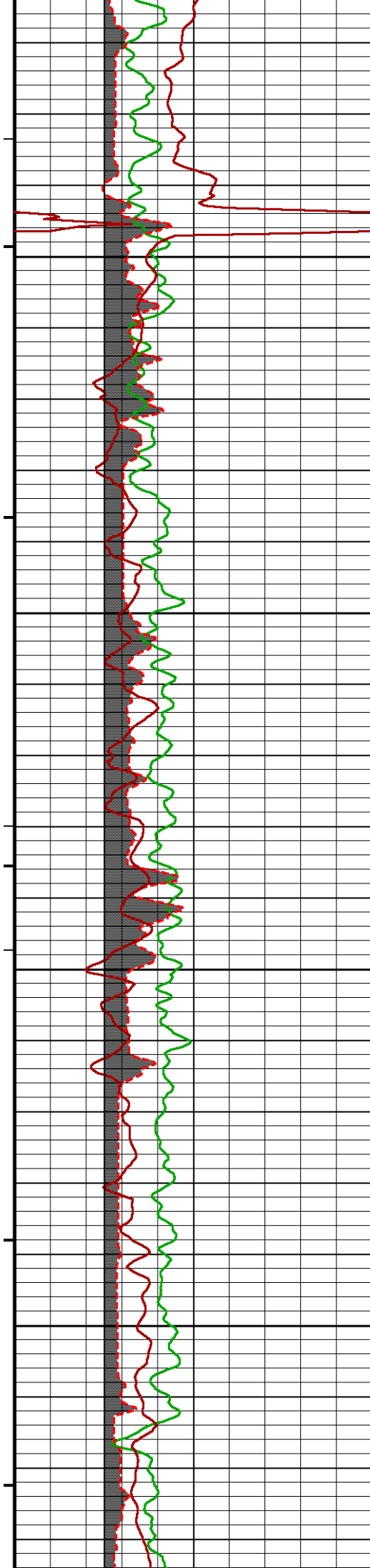












133°

9100

133°

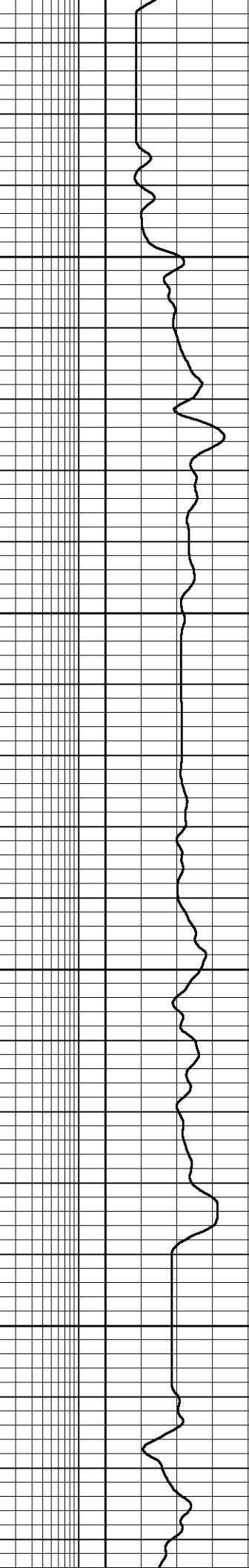
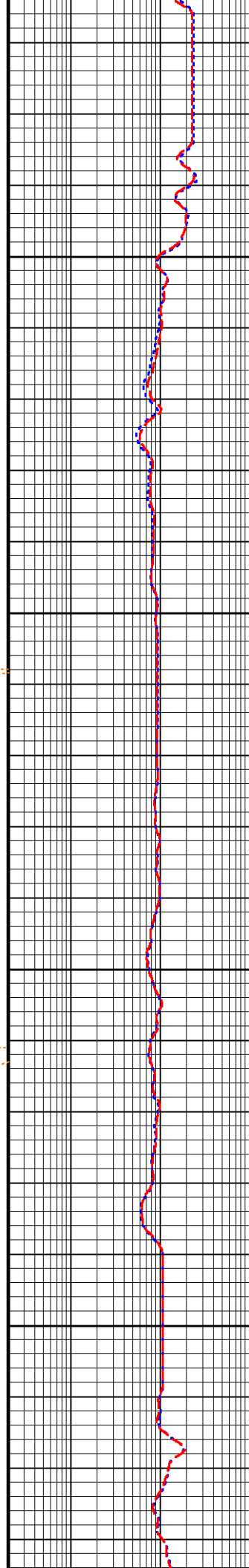
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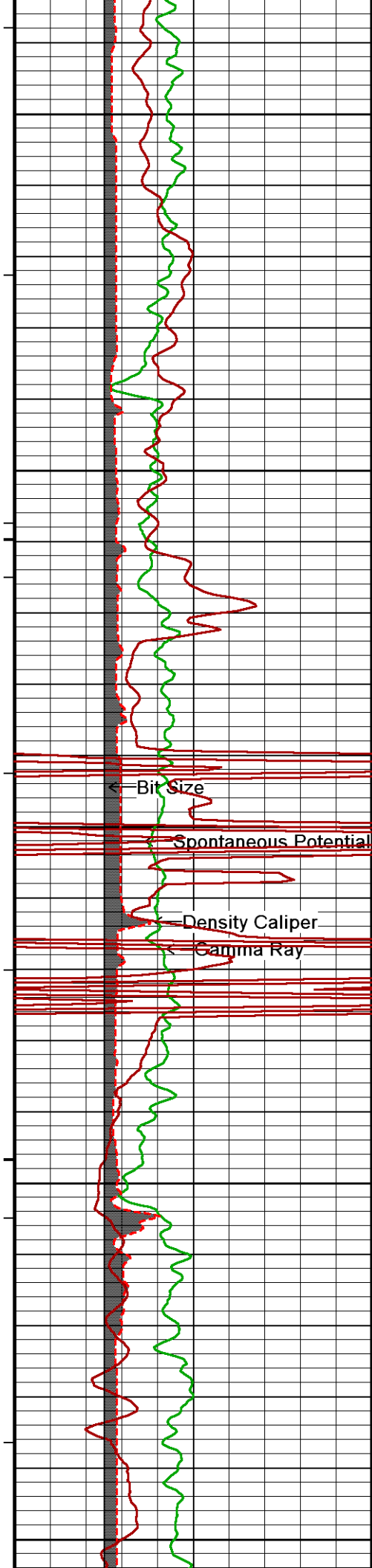
134°

9200

134°

9250





134°

9300

135°

9350

135°

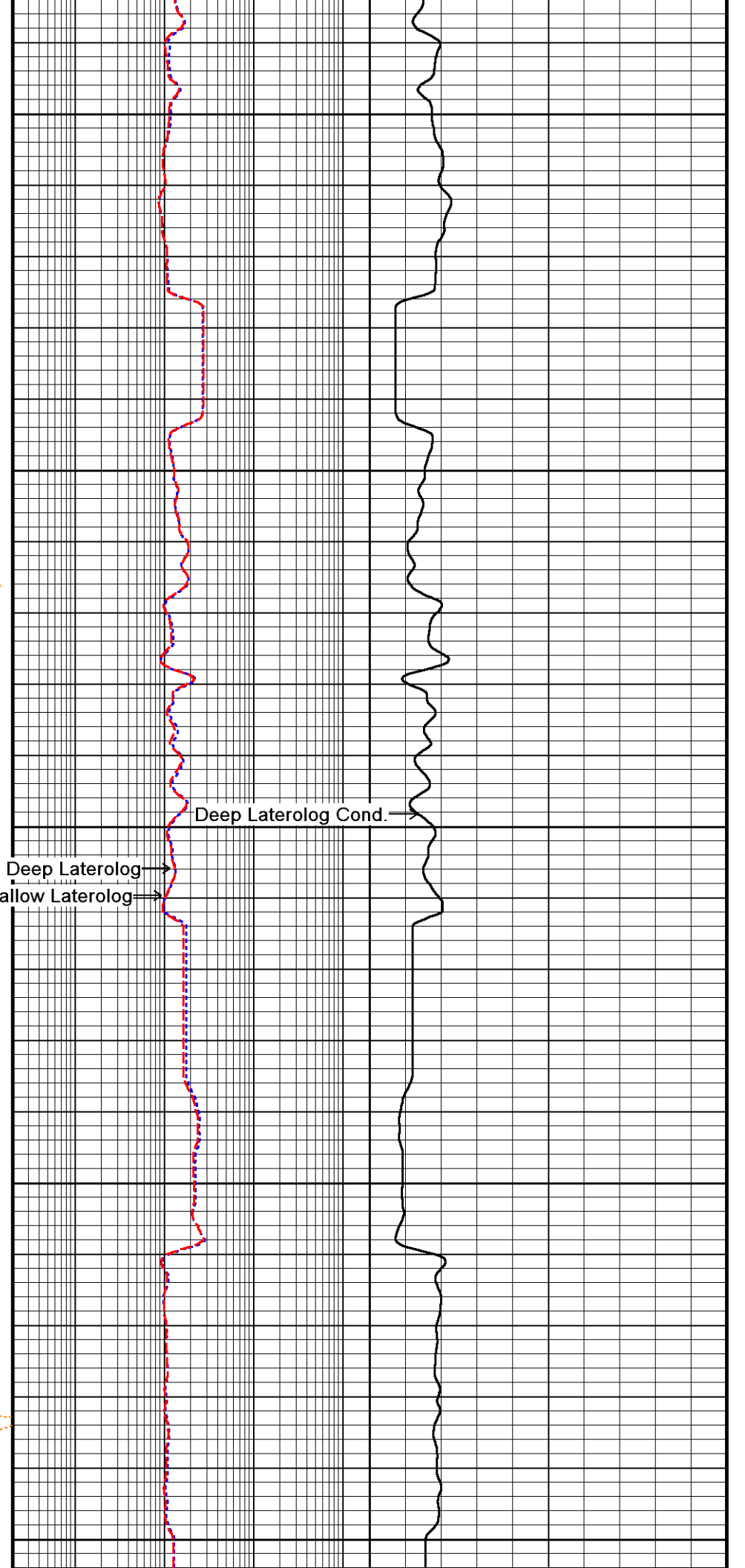
9400

135°

9450

136°

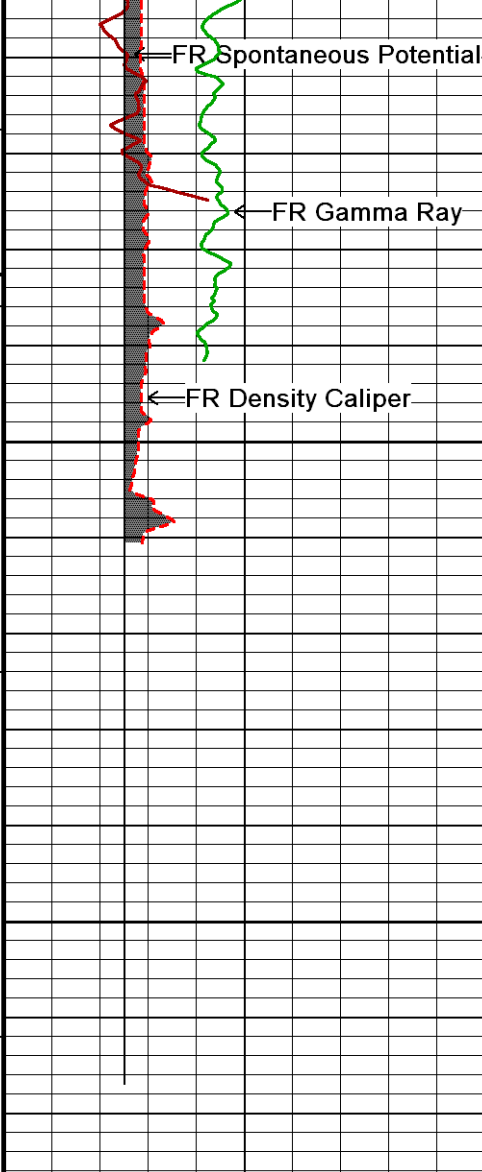
9500



Deep Laterolog Cond.

Deep Laterolog

Shallow Laterolog



136°

9550

9600

9624

Depth
in
Feet

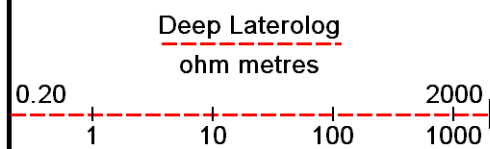
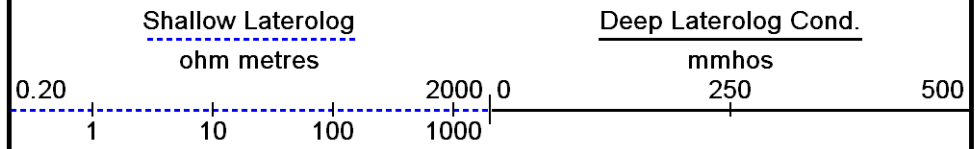
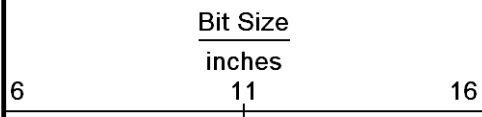
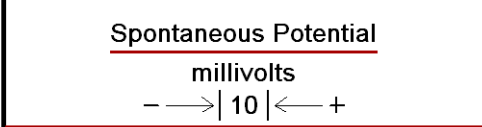
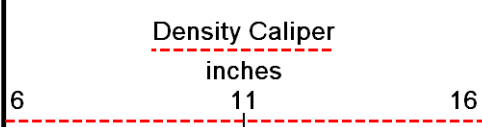
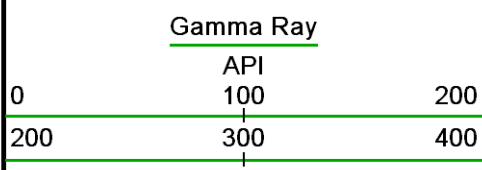
CGDT

Borehole
Temp in
deg F

Replay
Scale
1:242

FR Shallow Laterolog → FR Deep Laterolog Cond. →

Timing Marks
every 60.0 sec



	1:240	
Depth Based Data - Maximum Sampling Increment 10.0cm		Plotted on 22-JAN-2013 16:51
Filename: I:\LO6_26XD\Final\repro5.dta		Recorded on 10-JAN-2013 03:46
System Versions: Processed with 13.04.8723 Plotted with 13.04.8723		
↑	TDL PASS	↑

BEFORE SURVEY CALIBRATION					I:\LO6_26XD\Final\Check_07Jan13.dta
General Constants All 000				Last Edited on 07-JAN-2013,14:19	
General Parameters					
Mud Resistivity	1.400	ohm-metres			
Mud Resistivity Temperature	76.000	degrees F			
Water Level	0.000	feet			
Borehole Fluid Processing	Wet Hole				
Hole/Annular Volume and Differential Caliper Parameters					
HVOL Method	XY Caliper				
HVOL Caliper 1	MIE Caliper X				
HVOL Caliper 2	MIE Caliper Y				
Annular Volume Diameter	5.500	inches			
Caliper for Differential Caliper	MIE Caliper X				
Rwa Parameters					
Porosity used	Wyllie Lime. Sonic Por.				
Resistivity used	Deep Laterolog				
RWA Constant A	0.610				
RWA Constant M	2.150				
Down-hole Tension Calibration SMS 0				Field Calibration on 07-JAN-2013 14:23	
Reading No	Measured	Calibrated (lbs)			
1	14746.28	0.00			
2	15962.92	771.00			
High Resolution Temperature Calibration MCG-D.A 261				Field Calibration on 07-JAN-2013,14:04	
	Measured	Calibrated(Deg F)			
Lower	-10.00	-10.00			
Upper	10.00	10.00			
High Resolution Temperature Constants MCG-D.A 261				Last Edited on	
Pre-filter Length	11				
Gamma Calibration MCG-D.A 261				Field Calibration on 07-JAN-2013 14:00	
	Measured	Calibrated (API)			
Background	24	16			
Calibrator (Gross)	882	584			
Calibrator (Net)	859	568			
Gamma Constants MCG-D.A 261				Last Edited on 05-JAN-2013,16:25	
Gamma Calibrator Number	148				
Mud Density	1.41	gm/cc			
Caliper Source for Processing	Density Caliper				
Tool Position	Eccentred				
Concentration of KCl	0.00	kppm			
Laterolog Calibration MLE-D.A 227				Base Calibration on 29-NOV-2012 11:28 Field Check on 07-JAN-2013 14:11	
Base Calibration					
Channel	Resistor 1	Measured Resistor 2	Calibrated (ohm-m) Resistor 1 Resistor 2		
Shallow	0.0	1005.9	0.0	1284.4	
Deep	0.0	1005.0	0.0	795.7	
Groningen	0.0	1004.1	0.0	808.4	

Channel	Base Check (ohm-m)	Field Check (ohm-m)		
Shallow	45.9	45.9		
Deep	28.5	28.5		
Groningen	231.6	231.6		
Laterolog Constants MLE-D.A 227			Last Edited on 05-JAN-2013,16:24	
Squasher Start	40000	ohm-m		
Shallow Laterolog K Factor	1.2844			
Deep Laterolog K Factor	0.7957			
Groningen Laterolog K Factor	0.8084			
Interference Rejection	50 Hz			
SP Connection	SP Bridle Electrode (Lower)			
Groningen Connection	Groningen Electrode (Upper)			
Borehole Correction Constants				
Bridle Type	Standard			
Stand-off	0.50	inches		
Caliper Source	Density Caliper			
Hole Size	N/A	inches		
Mud Resistivity Source	Temperature Corrected			
Temp. for Rm Corr.	MCG External Temperature			
SP Calibration MLE-D.A 227			Field Calibration on 30-DEC-2012 14:57	
	Measured	Calibrated (mV)		
Reference 1	1588.3	1585.0		
Reference 2	-1572.3	-1585.0		
Navigation Constants MIE-A.A 171			Last Edited on 05-JAN-2013,17:03	
Magnetic Declination	0.41	degrees	East	
Magnetometer Parameters MIE-A.A 171				
Date Of Last Magnetometer Calibration	01-JAN-1998			
	X Magnetometer	Y Magnetometer	Z Magnetometer	
Slope	-1.000000	-1.002020	-0.997990	
Offset	0.007277	-0.017050	0.006204	
Magnetometer Constants MIE-A.A 171			Last Edited on	
Magnetometer Calibrator Number	000			
Accelerometer Parameters MIE-A.A 171				
Date Of Last Accelerometer Calibration	01-JAN-1998			
	X Accelerometer	Y Accelerometer	Z Accelerometer	
Slope	-1.102550	-1.109070	-1.101850	
Offset	-0.000016	0.010013	0.004867	
Accelerometer Constants MIE-A.A 171			Last Edited on 06-JAN-2009,08:08	
Accelerometer Calibrator Number	000			
Accelerometer Temperature Characterisation				
X Accelerometer				
Serial Number	575			
Calibration Date	02-May-2008			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.60823e-005	-6.81994e-010	1.67133e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.51987e-004	4.17046e-007	6.03291e-010
Y Accelerometer				
Serial Number	599			
Calibration Date	09-May-2008			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.35839e-005	8.99996e-011	-2.28896e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.66881e-004	3.48610e-007	5.78636e-010
Z Accelerometer				

Serial Number	553				
Calibration Date	03-Mar-2008				
	B0	B1	B2	B3	
Bias(g)	0.00000e+000	8.17361e-007	-1.32308e-009	2.20339e-011	
	SF0	SF1	SF2	SF3	
Scale Factor(mA/g)	3.00000e+000	2.75754e-004	3.23050e-007	1.10721e-009	
Caliper Calibration MIE-A.A 171			Base Calibration on 02-JAN-2013 17:02 Field Calibration on 07-JAN-2013 14:40		
Base Calibration					
Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)		
1	25797	25858	5.97		
2	31343	31658	7.96		
3	35597	35696	9.85		
4	40888	40726	11.92		
5	0	0	0.00		
Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	24046	24483	24417	24187	5.96
2	33219	33062	33265	32965	7.99
3	41468	41061	41092	40989	9.86
4	51330	51028	50959	50641	11.93
5	0	0	0	0	0.00
Field Calibration					
	Measured Pads 1-5 Caliper(in)	Measured Pads 3-7 Caliper(in)	Actual Caliper(in)		
	8.10	8.84	8.76		
	Measured Pad 2 Caliper(in)	Measured Pad 4 Caliper(in)	Measured Pad 6 Caliper(in)	Measured Pad 8 Caliper(in)	Actual Caliper(in)
	3.81	3.46	3.48	3.91	8.76
Caliper Constants MIE-A.A 171			Last Edited on 26-SEP-2011,09:23		
Caliper Difference for BRKT		0.120	inches		
Imager Pad Check MIE-A.A 171			Field Check on		
Pad 1	Pad Not Tested	Pad 5	Pad Not Tested		
Pad 2	Pad Not Tested	Pad 6	Pad Not Tested		
Pad 3	Pad Not Tested	Pad 7	Pad Not Tested		
Pad 4	Pad Not Tested	Pad 8	Pad Not Tested		
Compact Micro Imager Constants MIE-A.A 171			Last Edited on 05-JAN-2013,14:15		
Sonde Configuration		Caliper Mode			
Arm-Pad Kit		KIA-BA (19 in)			
Arm-Pad Kit Serial Number					
Centre Pad 1 Rotational Offset		0.00	degrees		
Image/Borehole Ovality Reference		Azimuth of Pad 1			
Non Active Buttons		N/A			
Search Angle		N/A	degrees		
Correlation Interval		N/A	feet		
Correlation Step		N/A	feet		
Current Offset		N/A	mAmp		
Squasher Start		N/A	mAmp		
Image Processing		N/A			
Caliper Calibration MPD-C.A 238			Base Calibration on 27-DEC-2012 13:01 Field Calibration on 07-JAN-2013 14:35		
Base Calibration					
Reading No	Measured	Calibrator Size (in)			
1	17729	3.98			
2	25552	5.96			
3	34192	7.99			
4	42256	9.86			
5	51487	11.93			
6	N/A	N/A			
Field Calibration					
	Measured Caliper (in)	Actual Caliper (in)			
	8.69	8.76			

COMPANY	SAVIA PERU S.A
WELL	LO6-26XD
FIELD	LOBITOS
PROVINCE/COUNTY	PIURA
COUNTRY/STATE	PERU

Elevation Kelly Bushing	50.00	feet	First Reading	6942.00	feet
Elevation Drill Floor	50.00	feet	Depth Driller	9800.00	feet
Elevation Ground Level	-335.00	feet	Depth Logger	6942.00	feet



RESISTIVITY LOG

MDL-MCG

SCALE 5":100 LOGARITHMIC